WHAT IS CLAIMED IS:

CLAIMS

1. A radiofrequency unit comprising:

a first dielectric substrate on the upper substrate of which is arranged a first conductive antenna layer;

a second dielectric substrate on the lower surface of which are arranged circuit elements comprising a chip connected to input/output pads of the unit by portions of a second conductive layer, and comprising a radiofrequency antenna line connected to the chip; and

a third screen conductive layer arranged between the first and second substrates, provided with a slot to couple the antenna line to the antenna layer, this conductive layer being floating;

in which the areas of the lower surface of the second dielectric substrate on which are not arranged the circuit elements are covered with grounded portions of the second conductive layer, one at least of the pads being connected to ground and each of the other pads being grounded by a capacitor forming a short-circuit for radiofrequencies; the thickness and the nature of the second substrate being chosen by taking into account the surface of said portions and of said pads for the screen layer to be coupled to ground by a capacitor forming a short-circuit for radiofrequencies.

2. The radiofrequency unit of claim 1, wherein one of the circuit elements is an inductance formed in the second conductive layer.

3. The radiofrequency unit of claim 1, wherein one of the circuit elements is a capacitor formed of two interleaved comb-shaped conductive surfaces formed in the second conductive layer.

4. The radiofrequency unit of claim 1, wherein welding balls are arranged on the input/output pads.

5. An antenna structure including a substrate structure, the antenna structure comprising:

a first antenna layer formed on a first surface of the substrate structure;

a second antenna layer formed on a second surface of the substrate structure;

a first conductive layer formed between the first and second antenna layers and including an opening formed in the first conductive layer adjacent the second antenna layer;

a second conductive layer formed on a third surface of the substrate structure, the second conductive layer being adapted to be coupled to a reference voltage source; and

first conductive segments formed on a fourth surface of the substrate structure, the first conductive portions being positioned relative to the second conductive layer to form respective first capacitors between each segment and the second conductive layer, and the first conductive segments being positioned relative to the first conductive layer to form respective second capacitors between each segment and the first conductive layer, each of the first and second capacitors having a relatively small impedance at an operating frequency of the antenna structure.

6. The antenna structure of claim 5 wherein the opening in the first conductive layer comprises a slot.

7. The antenna structure of claim 5 wherein the third and fourth surfaces of the substrate comprise the same surface.

8. The antenna structure of claim 7 wherein the substrate structure comprises:

a first dielectric substrate having a first surface adjoining the first antenna layer and a second surface adjoining the first conductive layer; and

a second dielectric substrate having a first surface adjoining the first conductive layer and a second surface corresponding to the third and fourth surfaces.

9. The antenna structure of claim 8 further comprising a communications chip coupled to the conductive segments and the second antenna layer.

10. An antenna structure including a substrate structure, the antenna structure comprising:

first means for transmitting a first electromagnetic signal responsive to an applied second electromagnetic signal;

second means for transmitting the second electromagnetic signal responsive to applied electric signals; and

screening means for allowing the second electromagnetic signal to be applied to the first means and for capacitively coupling to a reference voltage any first and second electromagnetic signals applied to the screening means.

11. The antenna structure of claim 10 further comprising a communications means for applying the electric signals to the second means for transmitting responsive to electric signals applied to the communications means.

12. The antenna structure of claim 11 wherein the screening means comprises means for providing a ground plane and means for providing the electric signals to the communications means.

13. An electronic system including a wireless communications unit, the communications unit comprising:

an antenna structure including a substrate structure, the antenna structure including,

a first antenna layer formed on a first surface of the substrate structure;

a second antenna layer formed on a second surface of the substrate structure;

a first conductive layer formed between the first and second antenna layers and including an opening formed in the first conductive layer adjacent the second antenna layer;

a second conductive layer formed on a third surface of the substrate structure, the second conductive layer being adapted to be coupled to a reference voltage source; and

first conductive segments formed on a fourth surface of the substrate structure, the first conductive portions being positioned relative to the second conductive layer to form respective first capacitors between each segment and the second conductive layer, and the first conductive segments being positioned relative to the first conductive layer to form respective second capacitors between each segment and the first conductive layer, each of the first and second capacitors having a relatively small impedance at an operating frequency of the antenna structure; and

a communications chip coupled to the conductive segments and the second antenna layer.

14. The electronic system of claim 13 wherein the system comprises a computer system.

15. The electronic system of claim 13 wherein operating frequency comprises a frequency in the range of approximately 1.8 GHz to 10 GHz.

16. A method of transmitting electromagnetic signals, the method comprising:
forming a first antenna structure;
forming a second antenna structure;
forming a conductive structure between the first and second antenna structures, the conductive structure including an opening adjacent the second antenna structure and being electrically isolated from the first and second antenna structures at direct voltages and currents;
applying electric signals to the second antenna structure that cause the second antenna structure to generate first electromagnetic signals that propagate through the opening in the conductive structure, the first electromagnetic signals having a frequency;
transmitting second electromagnetic signals from the first antenna structure responsive to the first electromagnetic signals propagating through the opening; and
capacitively coupling the conductive structure to a reference voltage for signals incident on the conductive structure having the frequency.

17. The method of claim 16 wherein capacitively coupling the conductive structure to a reference voltage for signals having the frequency comprises:
forming a reference structure adjacent the conductive structure; and
forming a dielectric structure between the reference and conductive structures.

18. The method of claim 17 wherein forming a reference structure adjacent the conductive structure comprises:
forming a conductive reference plane; and
forming a plurality of signal pads.

19. The method of claim 18 wherein each of the signal pads has an area and wherein the dielectric has a dielectric constant, and wherein the dielectric constant and areas of the signal pads are selected to form capacitors having relatively low impedances at the frequency between each signal pad and the conductive structure, and to form capacitors having relatively low impedances at the frequency between each signal pad and the conductive reference plane.

20. The method of claim 19 wherein each of pads has an approximately square shape, with the lengths of the sides being chosen to provide the desired area for each pad.